UL Management Post Stroke

SHONA GALBRAITH, OT, CSRS

MARK ADAMS, PT, BURWOOD

Overview

What does EBP look like for the UL post stroke?

Breaking down Assessment and Rehab of the UL?

The Dos of hemiplegic shoulder management.

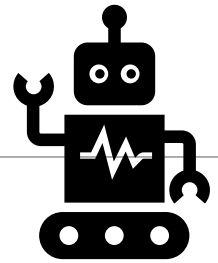
Aus/NZ guidelines

[Living Clinical Guidelines for Stroke… | InformMe - Stroke Foundation]



Weakness




Strong recommendation

For stroke survivors with reduced strength in their arms or legs, **progressive resistance training** should be provided to improve strength.

Weak recommendation

For stroke survivors with arm weakness, **repetitive practice using assistive technology**, **constraint induced movement therapy (CIMT)**, and **robotics** may be used to improve arm strength.

Weak recommendation

For stroke survivors with reduced strength in their arms or legs (particularly for those with less than antigravity strength), **electrical stimulation** may be used.

Loss of sensation

Weak recommendation

For stroke survivors with sensory loss of the upper limb, **sensory-specific training** may be provided.



Arm activity



Strong recommendation

For stroke survivors with some active wrist and finger extension, **intensive constraint-induced movement therapy** (minimum 2 hours of active therapy per day for 2 weeks, plus restraint for at least 6 hours a day) should be provided to improve arm and hand use.

Weak recommendation







Electrical stimulation in **conjunction** with motor training.

Mirror therapy may be used as an **adjunct** to routine therapy.

Mental practice in conjunction with active motor training.

Repetitive task-specific training.

Virtual reality and interactive games.

Mechanically assisted arm training (e.g. **robotics**)







Function, pain or range of movement

Strong recommendation against

Hand and wrist orthoses (splints) should not be used as part of routine practice as they have no effect on function, pain or range of movement.



Amount of therapy

Strong recommendation

For stroke survivors, rehabilitation should be structured to provide as much scheduled therapy (occupational therapy and physiotherapy) as possible.

For stroke survivors, group circuit class therapy should be used to increase scheduled therapy time.

Weak recommendation

A minimum of three hours a day of scheduled therapy (occupational therapy and physiotherapy) is recommended, ensuring at least two hours of active task practice occurs during this time.

Features of effective UL motor interventions

CIMT

Mirror Therapy

Electrical Stimulation

Mental Practice



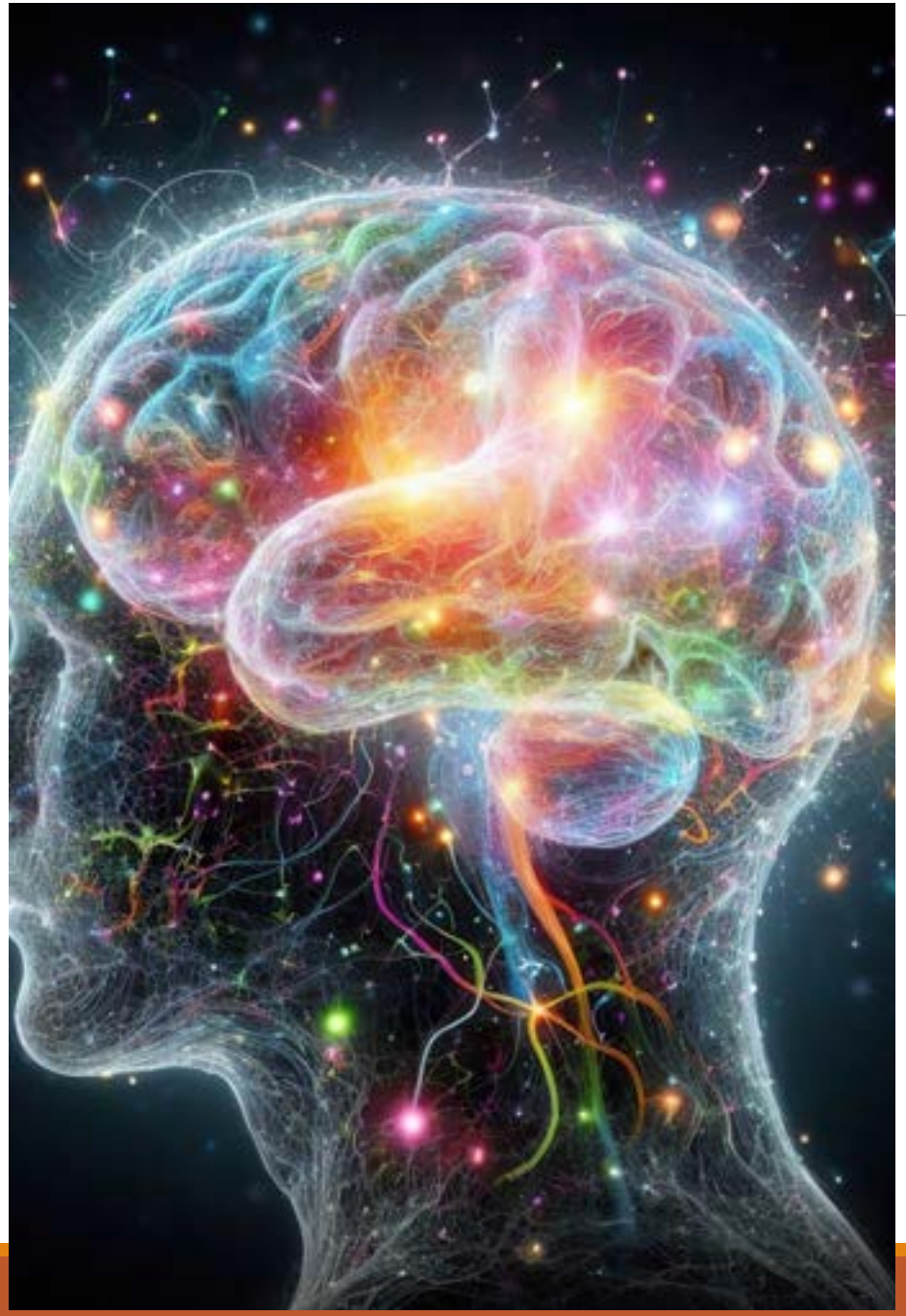
Task Specificity



Intensity of training

Goal focused assessment and treatment

- Start with “What are you unable to do now that you would like to be able to do again?” / “What can I help you get back to doing?”
- Ask them to perform the activity to the best of their ability.
- Know the biomechanics of common UL movements.
- Be a sniper, not a shotgun, when targeting your treatment.
- Ensure you are using the modalities in an evidence-based way.
- Keep progressing the program as the person improves.



We’re rehabbing the Brain

Connecting the arm and brain

Neuro Rewiring

Demands Concentration

Thorough Assessment Essential

Picture https://scitechdaily.com

Proprioception

- Connect brain to body position & movement

- Automatic or Learnt movements

- Assess by joint position matching

- Spend time connecting

- Increase feedback to the brain





Sensation

Brain connecting with sensory nerve endings

Interpreting touch and feeling

The importance of anticipatory work/ priming

Gather a variety of items in a box or pillow case

Spend time concentrating on sensation

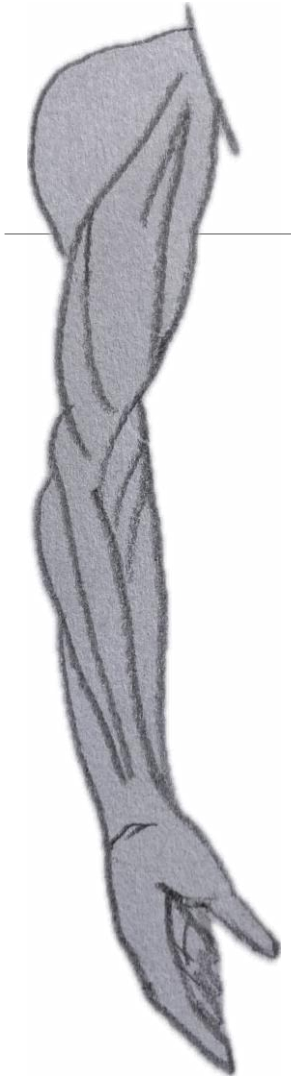
Use the other side as a guide

SENSe: A new therapy to drive neural plasticity



Sensory Box Ideas





Motor

Connecting the brain with the muscles ligaments and tendons

Full focus is needed

Its about ‘Neural Connections’ not strengthening the muscles

Concentration is needed

A well charged brain is best

Rehabilitation of the Arm

- Do Anything and Everything
- Utilise the time people lie in bed or sit in chairs
- Visual Imagery
- Using everyday objects
- Don’t compensate with the other arm
- Relax stronger muscles- find pathways to the finer movements
- Use coaching feedback to help improve normal movement

GRASP 1 2 3

Stretching

Strengthening

Coordination

Hand Skill

Range of Motion

Weight Bearing

Trunk Control

Gross & Fine Motor





Date: Client Name: Therapist:

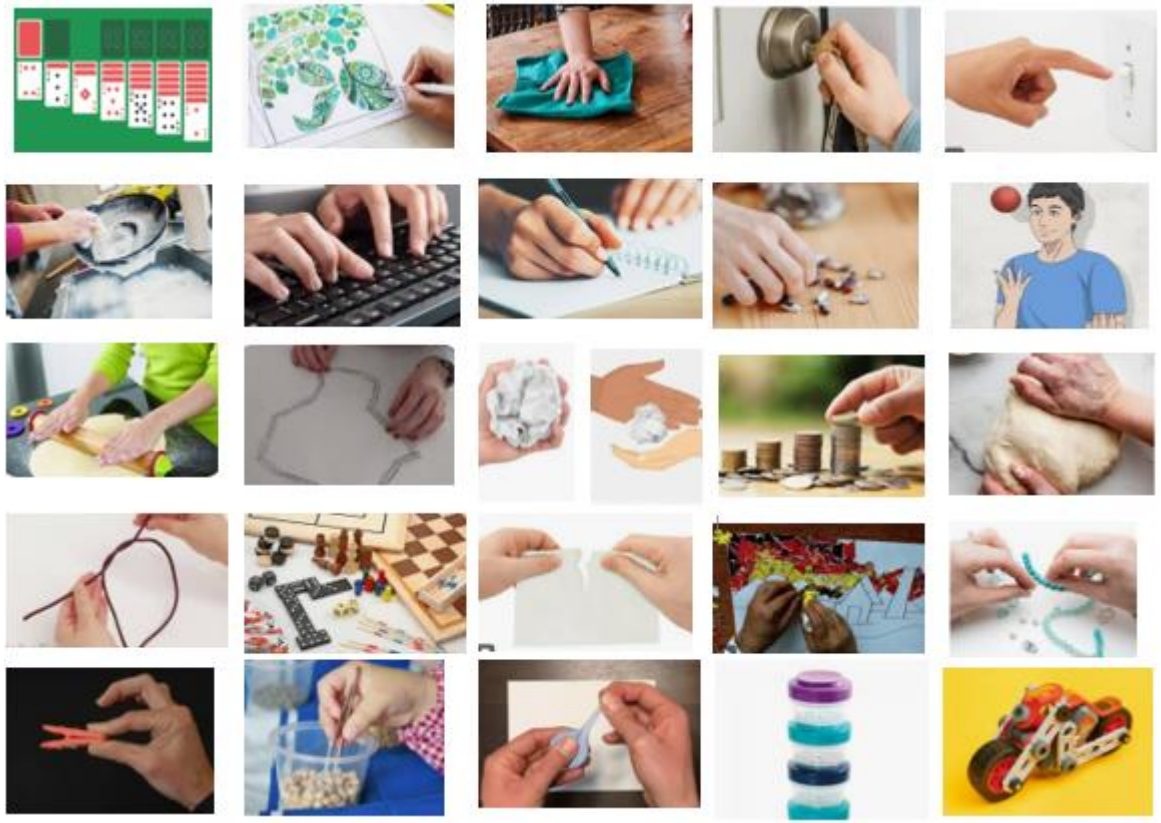
A list of ideas for upper limb dexterity and strength. Vary activity and don't do too many repetitions that could strain the hand. Take a short rest if you tire before doing more. Think about normal movement of the arm and hand. Use your stroke affected arm as much as possible in every activity. Be aware of balance and what is right for you. Stop any activity if it causes pain and let your therapist know. Some are easy some are hard- these ideas will hopefully lead you to finding other activities that are of more meaning to you.

Use a pack of cards to play solitaire, sort into suits, play a game with someone, shuffle them.					
Picking up and stacking coins of varying sizes. You could use anything- card, coasters, dice, poker chips, bankcards.					
Play board games such as connect four, scrabble, monopoly, dominos, chess etc					
Catch and throw a ball use various sizes soccer, tennis, table tennis, ball of wool					
Unscrewing nuts from bolts of various sizes. Sort nails/ screws into their groups.					
Practice using pegs- squeeze them open and placing them on the rim of a cup/ bowl or on clothing.					
Tie knots with material or string/ wool or cotton. Knit a scarf or square or weave thread.					
Make a collage of pictures from magazines, involves turning pages, cutting and gluing.					
Pick up small objects using tweezers.					
Draw shapes/ letters. Colour in a picture or some mindful drawing- buy a book.					
Thread various size beads onto string.					
Tear a sheet of paper into strips, making pieces smaller and smaller.					
Scrunch a piece of paper or material up into a small ball and then flatten it out on a tabletop.					
Use a lump of blue tac or some playdoh or like to model shapes.					
Practice picking up buttons/ thread buttons, beads onto thread.					
Stacking Dominos, cubes, paper cups etc.					
Make a chain of paper clips.					
Make a Model. Fix a model. Use some LEGO.					
Bake scones, bread/ anything that takes kneading/ mixing.					
Roll out pastry, scones or even just use rolling pin on a tea towel back and forward.					
Type on a keyboard with both hands- write a letter, words of a song or sentences you like. Use an App to learn how to type with both hands.					
Mix up a bag of dried beans, lentils, peas etc and sort into groups.					
Doing things around your home- turning lights, switches on/ off. Opening doors. Washing up and drying up. Locking and unlocking doors.					
Clean the mirrors or windows or cupboards with a cloth- dry or wet and wring the cloth out too.					
Polish tabletops and counters. Take items off a shelf dusting and restack.					
Find a balloon and hit it up in the air.					
Walking arms up and down a wall.					
Take items off a shelf (dusting the shelf) and restack.					
Word searches, sudoku, mazes, anything holding a pen.					
Find a small item Lego, coin, stick, marble, button to move around in your hand.					

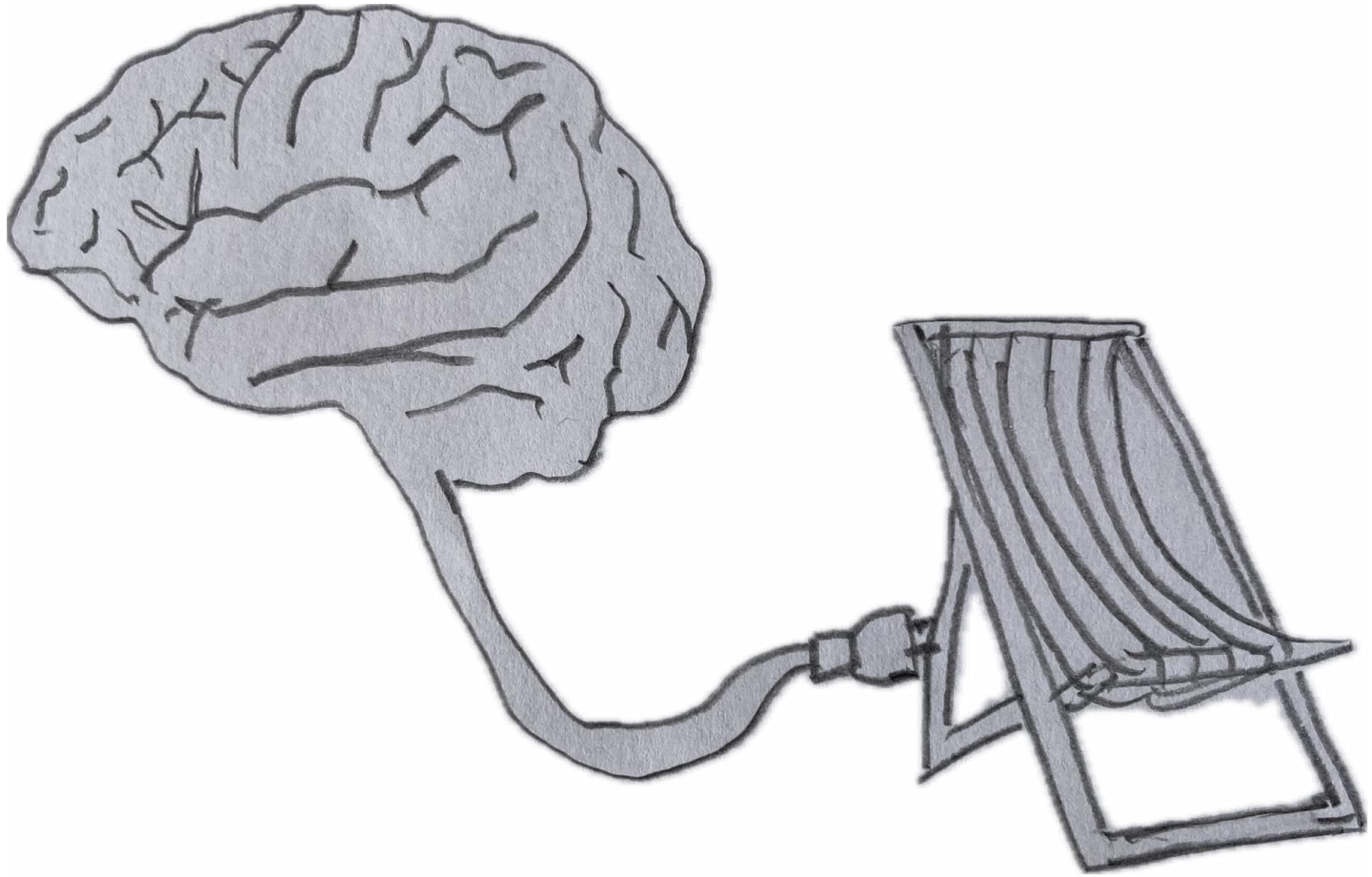
Upper Limb Activities Sheet

- Find a box to fill with objects
- Dedicated time to work on activity
- It's about variety and time doing
- Familiar movements spark cognitive and muscle memories lets fast forward neural recovery
- Encourage people to add more meaningful ideas

Activity Sheet in Pictures



Full charged brain recovers quicker



The DOs of hemiplegic UL management

DO position the limb in a supportive position when lying, sitting and standing. Gravity is a large force on a hemiplegic arm.

DO wear your splint for Transferring, Standing and Walking only.

DO use correct transfer techniques to avoid pulling/assisting/ lifting under the hemiplegic arm. The shoulder joint especially is very fragile at this time.

DO educate everyone on how to manage the hemiplegic arm.



Caring for Your Arm After a Brain Injury

A common problem following a stroke or brain injury is weakness and/or sensory changes in one or both of your arms.

Because the muscles may not be able to provide adequate support for your arm during this time, it is important that you and your family/whanau learn how to take best care if it.

Your shoulder is at particular risk of becoming stiff or painful and the following advice may help to prevent this.

SOME IMPORTANT TIPS

Careful Positioning

- Your therapist may provide you with a sling to protect your arm
- **Wear** your sling when you are **transferring, standing** and **walking**
- **Remove** your sling when **sitting or lying down** to prevent your muscles from becoming tight
- Make sure that your arm is well supported by a pillow or tray when you are not wearing your sling
- Please wear any splints provided as advised by your therapy team

Careful Handling

- remember to support your arm across your body when rolling over in bed
- check where your arm is before standing or transferring, as well as when washing, dressing and eating

Please do not

- Pull on your affected arm or hand
- leave your arm in your sling all of the time
- let your arm hang over the side of your chair
- If people are assisting you to move, they must not lift you under your affected arm
- Please only perform the exercises provided to you by your therapy team

Your therapists will work with you to make a plan for caring for your arm throughout your rehabilitation.

If you have any concerns, please discuss these with your therapy team



Question Time

Mark.Adams2@cdhb.health.nz
Shona.Galbraith3@cdhb.health.nz

Caring for Your Arm After a Brain Injury

A common problem following a stroke or brain injury is weakness and/or sensory changes in one or both of your arms.

Because the muscles may not be able to provide adequate support for your arm during this time, it is important that you and your family/whanau learn how to take best care if it.

Your shoulder is at particular risk of becoming stiff or painful and the following advice may help to prevent this.

SOME IMPORTANT TIPS



Careful Positioning

- Your therapist may provide you with a sling to protect your arm
- **Wear** your sling when you are **transferring, standing** and **walking**
- **Remove** your sling when **sitting or lying down** to prevent your muscles from becoming tight
- Make sure that your arm is well supported by a pillow or tray when you are not wearing your sling
- Please wear any splints provided as advised by your therapy team



Careful Handling

- remember to support your arm across your body when rolling over in bed
- check where your arm is before standing or transferring, as well as when washing, dressing and eating



Please do not

- Pull on your affected arm or hand
- leave your arm in your sling all of the time
- let your arm hang over the side of your chair
- If people are assisting you to move, they must not lift you under your affected arm
- Please only perform the exercises provided to you by your therapy team

Your therapists will work with you to make a plan for caring for your arm throughout your rehabilitation.

If you have any concerns, please discuss these with your therapy team

Canterbury
District Health Board